

■ PRODUCT CHARACTERISTICS

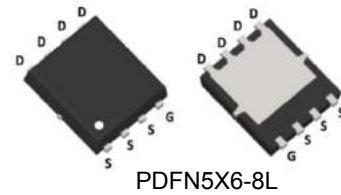
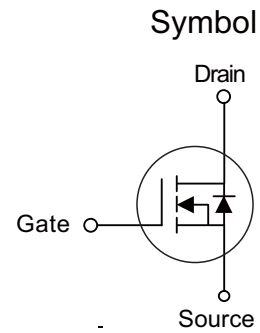
V _{DSS}	60V
R _{DS(on)typ} (@V _{GS} =10 V)	15mΩ
R _{DS(on)typ} (@V _{GS} =4.5 V)	18mΩ
I _D	50A

■ APPLICATIONS

- Portable Equipment and Battery Powered systems.
- Power Management in Notebook Computer

■ FEATURES

- Lower R_{DS(ON)} to Minimize Conduction Losses
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT6515G	PDFN5X6-8L	5000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C Unless Otherwise Noted)

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	V _{DSS}	60	V	
Gate-Source Voltage	V _{GSS}	±20	V	
Drain Current	Continuous	I _D	50	A
	Pulsed	I _{DM}	100	A
Avalanche Energy	Single Pulsed	E _{AS}	66	mJ
Peak Diode Recovery dv/dt	dv/dt	6.4	V/ns	
Power Dissipation	P _D	28	W	
Junction to Case	θ _{JC}	4.46	°C/W	
Junction Temperature	T _J	+150	°C	
Storage Temperature Range	T _{STG}	-55 ~ +150	°C	

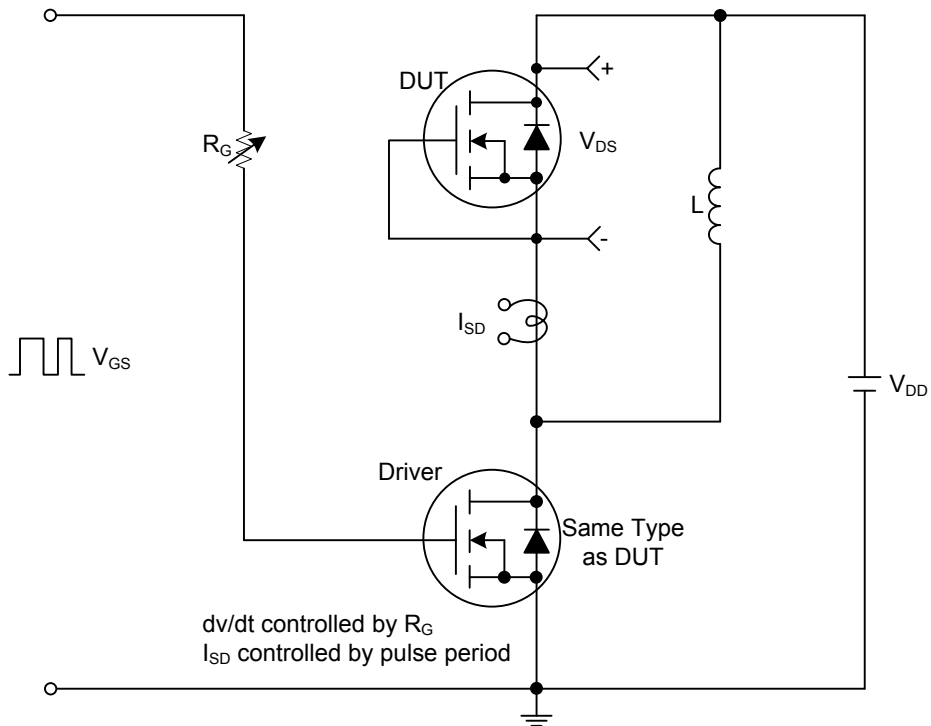
■ ELECTRICAL CHARACTERISTICS (T_c=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	60	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1.0	μA
Gate-Source Leakage Current	Forward	I _{GSS}	-	-	+100	nA
	Reverse				-100	nA
On characteristics						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0	-	3.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =25A	-	15	18	mΩ
		V _{GS} =4.5V, I _D =20A	-	18	22	mΩ
Dynamic characteristics						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz	-	1820	-	pF
Output Capacitance	C _{OSS}		-	220	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	180	-	pF
Switching characteristics						
Total Gate Charge (Note 1)	Q _G	V _{DS} =48V, V _{GS} =10V, I _D =50A, I _G =100μA (Note 1, 2)	-	62	-	nC
Gate to Source Charge	Q _{GS}		-	7	-	nC
Gate to Drain Charge	Q _{GD}		-	18	-	nC
Turn-on Delay Time (Note 1)	t _{D(ON)}	V _{DS} =30V, V _{GS} =10V, I _D =50A, R _G =3Ω (Note 1, 2)	-	8	-	ns
Rise Time	t _R		-	18	-	ns
Turn-off Delay Time	t _{D(OFF)}		-	44	-	ns
Fall-Time	t _F		-	22	-	ns
Source-drain diode ratings characteristics						
Maximum Body-Diode Continuous Current	I _S		-	-	50	A
Maximum Body-Diode Pulsed Current	I _{SM}		-	-	100	A
Drain-Source Diode Forward Voltage (Note 1)	V _{SD}	I _S =50A, V _{GS} =0V	-	-	1.3	V
Reverse Recovery Time (Note 1)	t _{rr}	I _S =30A, V _{GS} =0V, dI _F /dt =100A/μs	-	102	-	nS
Reverse Recovery Charge	Q _{rr}		-	140	-	nC

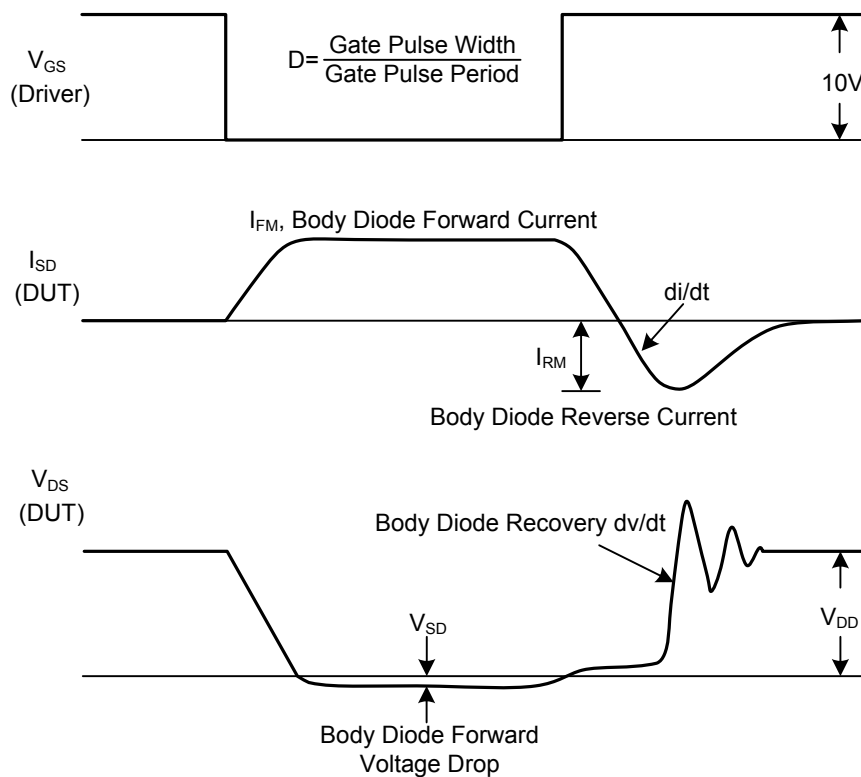
Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating ambient temperature.

■ TEST CIRCUITS AND WAVEFORMS



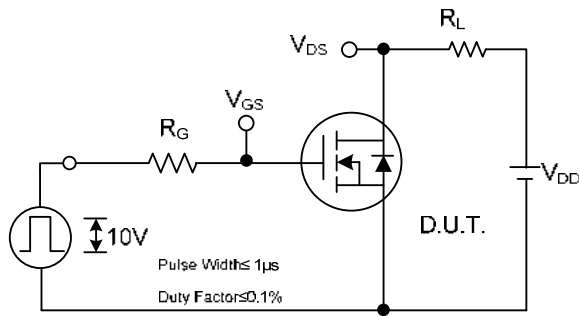
Peak Diode Recovery dv/dt Test Circuit



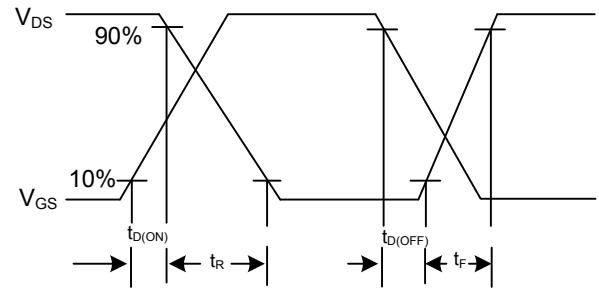
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

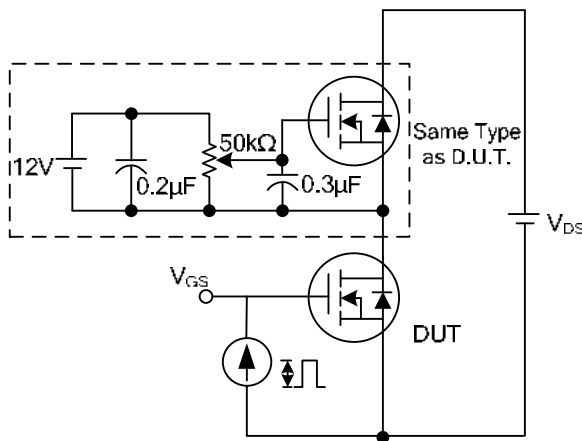
■ TEST CIRCUITS AND WAVEFORMS(Cont.)



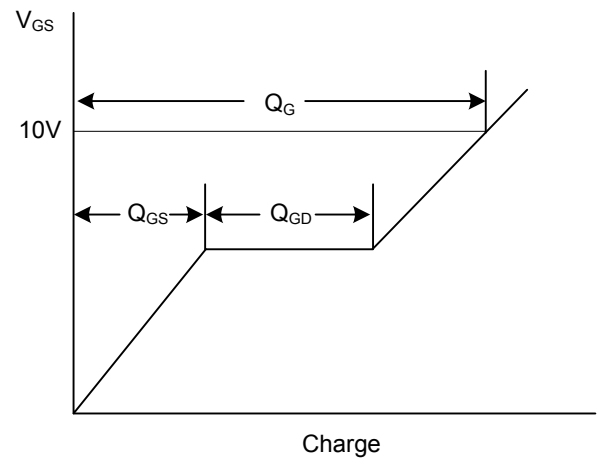
Switching Test Circuit



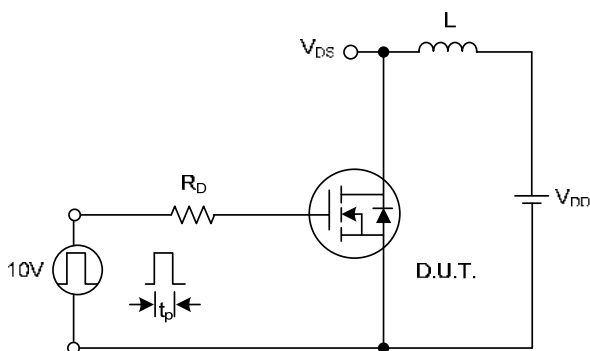
Switching Waveforms



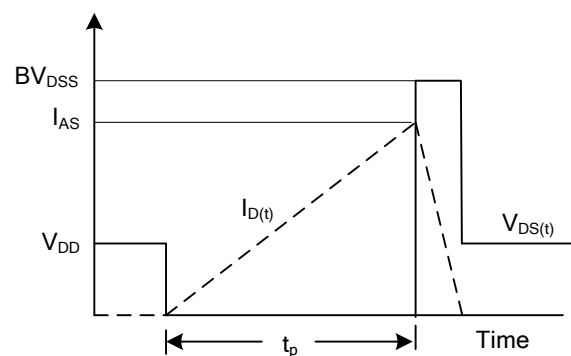
Gate Charge Test Circuit



Gate Charge Waveform

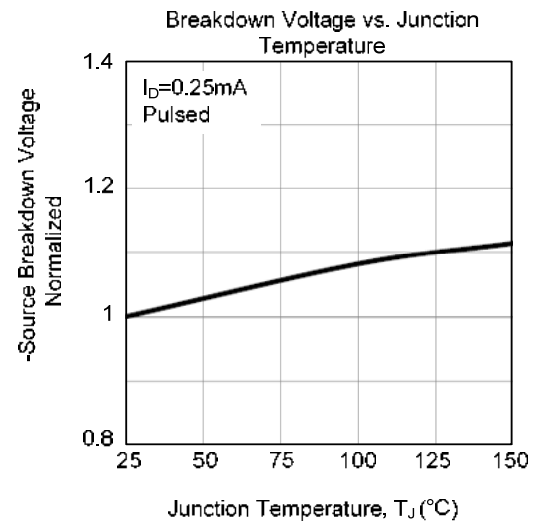
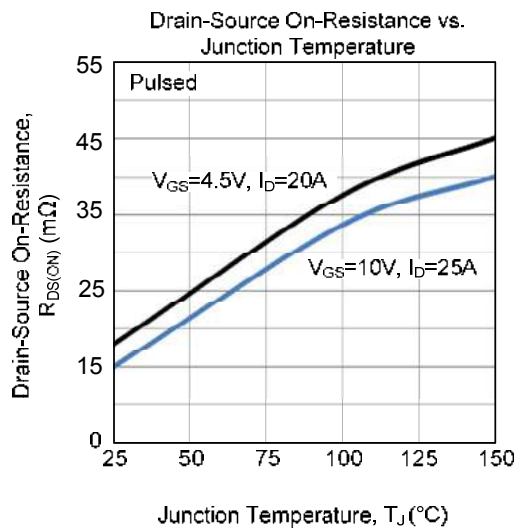
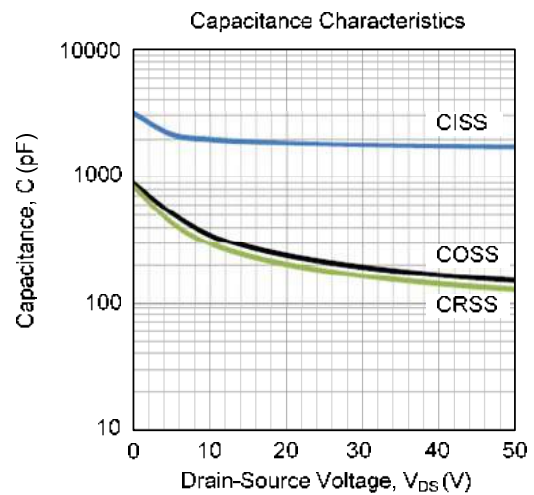
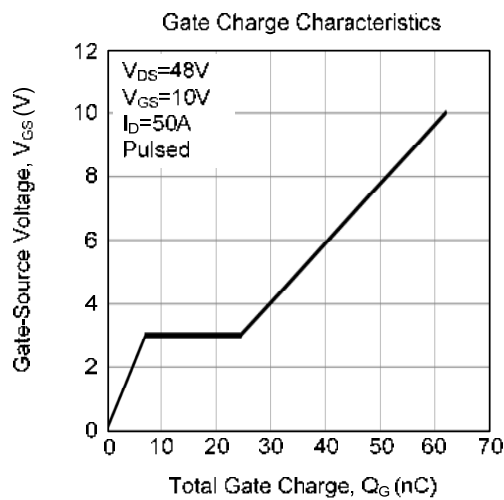
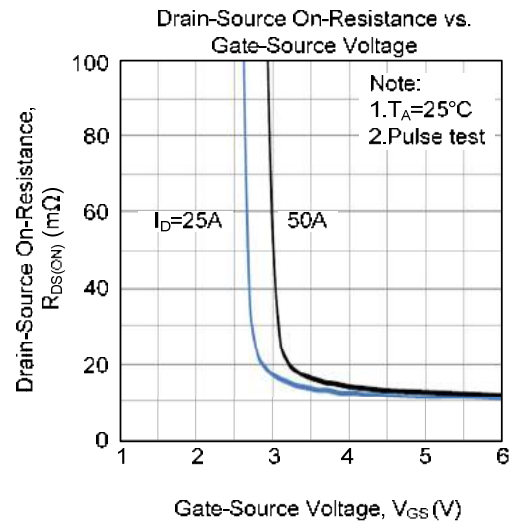
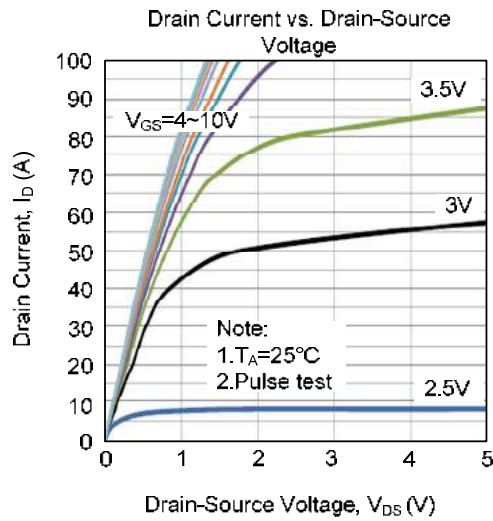


Unclamped Inductive Switching Test Circuit

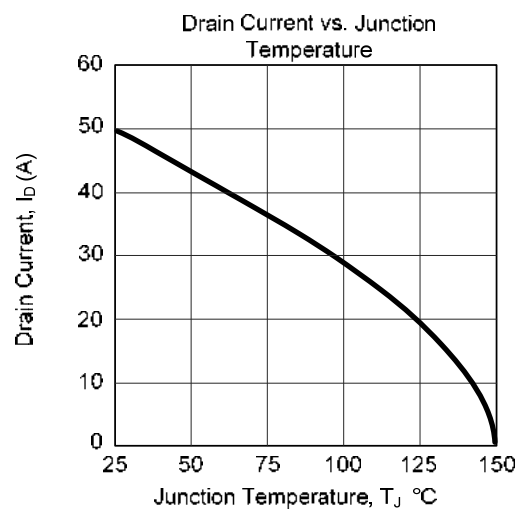
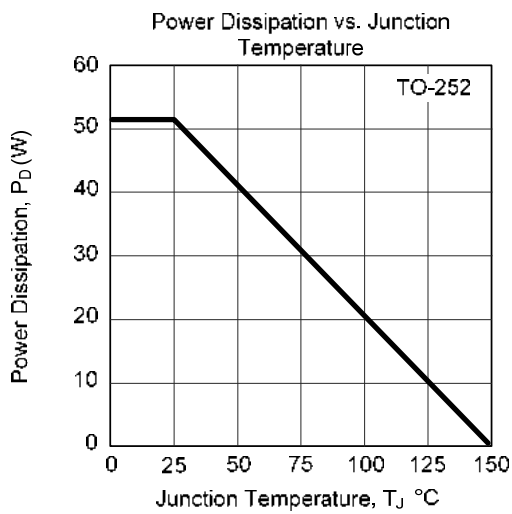
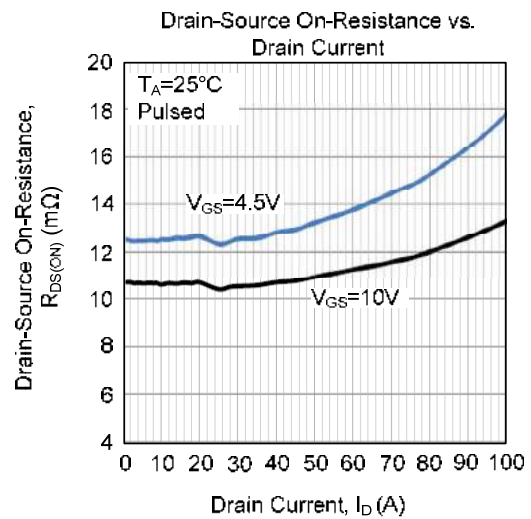
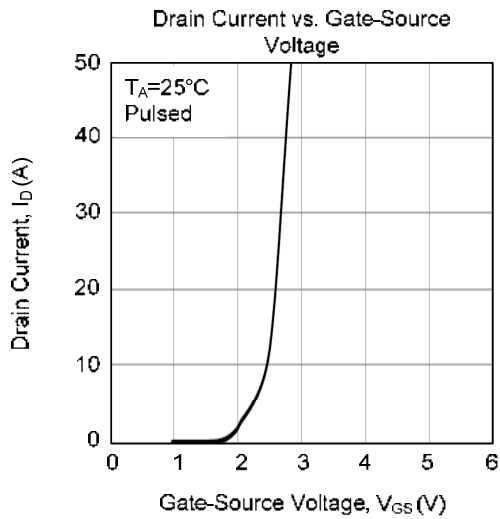
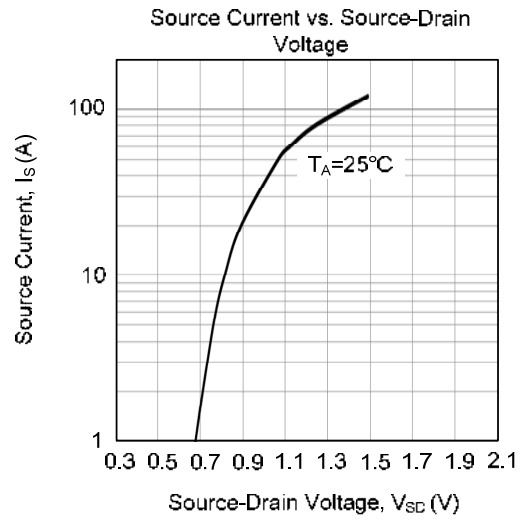
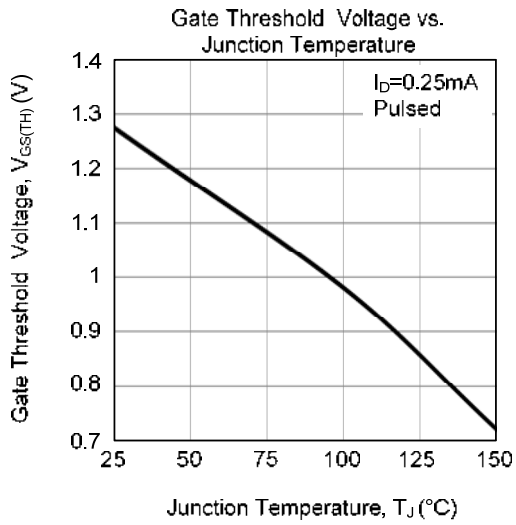


Unclamped Inductive Switching Waveforms

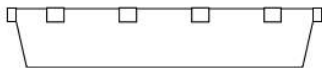
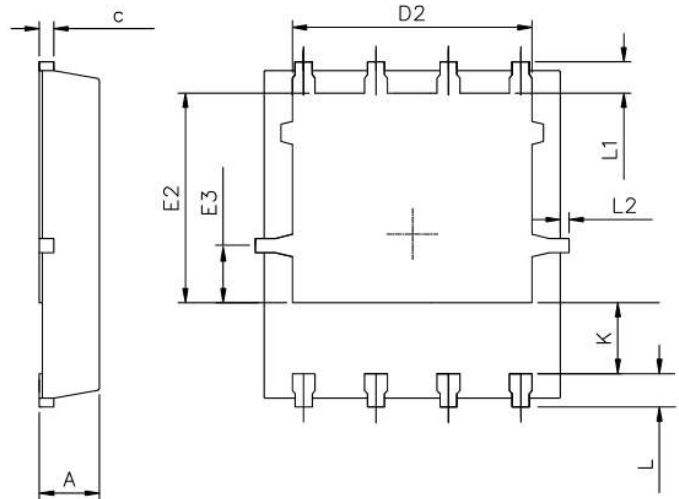
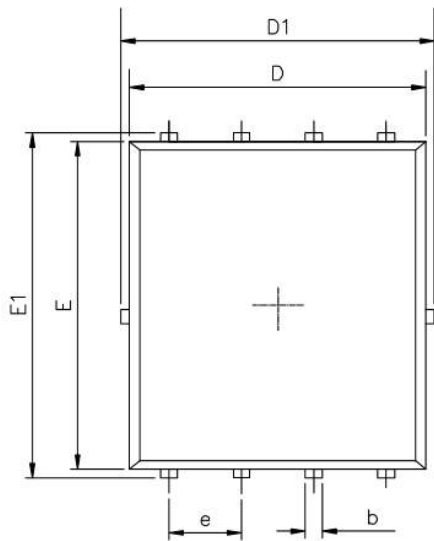
■ TYPICAL CHARACTERISTICS



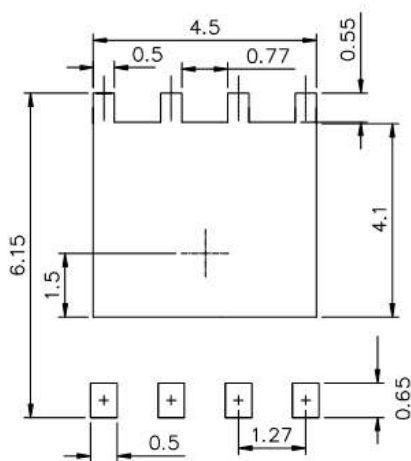
■ TYPICAL CHARACTERISTICS(Cont.)



■ PDFN5X6-8L Package Mechanical Data



RECOMMENDED LAND PATTERN



UNIT:mm

	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50